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Indian Standard

(Reaffirmed 2002)

METHODS OF TEST FOR POLYVINYL CHLORIDE BOOTS

PART 8 RESISTANCE TO FLEXING FOR POLYVINYL CHLORIDE UPPER MATERIAL

1. Scope — This standard (Part 8) prescribes the method for determining the resistance of upper material of polyvinyl chloride boots when subjected to repeated flexing or bending under specific conditions and for known periods on flexing machine.

2. Terminology

2.1 For the purpose of this standard, the definitions given in IS : 2050-1967 'Glossary of footwear terms' shall apply.

3. Principle

3.1 This test gives a measure of the resistance of PVC upper material to cracking resulting from flexing in wear, the flex producing double creases similar to those formed in the upper of a boot during wear.

4. Apparatus

4.1 The apparatus consists of pairs of *V*-shaped clamps suitably mounted so that the axes of each pair are in the same straight line (*see* Fig. 1). The angle of the *V* is 40 ± 1°. The tip of the *V* is rounded and has a radius of curvature of 6·4 mm. The clamps are 28·5 ± 1·0 mm apart in the 'open position' and 9·5 ± 1·5 mm apart in the 'closed position' thus giving a throw on stroke of 19·0 ± 1·5 mm.

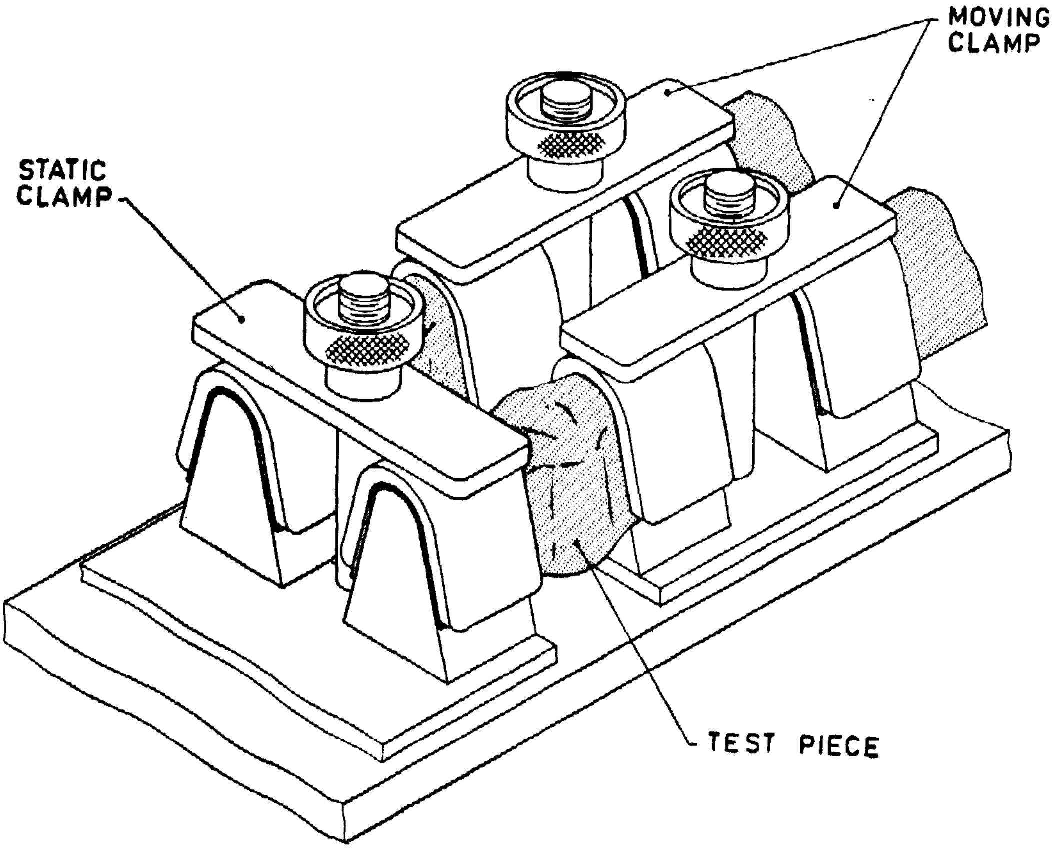

FIG. 1 TYPICAL APPARATUS FOR DETERMINATION OF RESISTANCE TO FLEXING

Footwear Sectional Committee, EDC 40; Measurement, Sampling and Testing Subcommittee, CDC 40 : 2 [Ref : Doc : 40 (9123)]

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4.1.1 *Refrigerated Cabinet* — Capable of being maintained at — 5 ± 2° C. The driving motor of the flexing machine shall be outside the cabinet and the frequency of flexing is 1·5 Hz.

Note — This test is related to cold crack test and is not made applicable in India except at the regions of mountains/hills where the temperature goes below — 5°C in winter season. This is an optional requirement as agreed to between the manufacturer and the purchaser.

5. Preparation of Test Pieces

5.1 Cut from the sample two strips, each 65 mm wide and 70 mm long, with the length parallel to the longitudinal direction. Cut two further strips with the length parallel to the cross direction. Select strips evenly spaced from the full usable length and width of the sample.

6. Conditioning and Temperature of Test

6.1 Condition the test piece for 24 h at 27 ± 2°C and 65 ± 5 percent relative humidity [*see* IS : 196-1966 Atmospheric conditions of temperature (*revised*)]. (The testing to be carried out at a temperature of — 5 ± 2°C, if note under **4.1.1** is made applicable).

7. Procedure

7.1 Fit the test pieces into the apparatus with the pair of clamps in the open position. Position the specimen, coating outwards, symmetrically in the pair of clamps so that the length is parallel to the axis of the clamps. Check that the inner edges of the two halves are in line. Fit other test pieces in a similar manner.

7.1.1 Move the clamps together by hand and check that each test piece folds with an inward crease symmetrically across it, surrounded by a diamond of four outward creases. If necessary, assist the formation of this crease pattern by hand.

7.1.2 Flexing must start not later than 10 minutes after loading has commenced.

7.1.3 Set the apparatus in motion and stop it when cracking occurs or after the specified number of cycles, if no cracking has occurred by that time.

8. Expression of Results

8.1 If the samples reach the specified number of cycles without crack occurring, the report shall state that the samples have passed the test.

8.1.1 If cracking occurs before the specified number of cycles have been completed, the report shall state that the samples have failed the test.

8.1.2 Record the temperature of test and humidity.

EXPLANATORY NOTE

In the preparation of this standard, considerable assistance has been derived from ISO 4643-1980 'Plastics moulded footwear — Polyvinyl chloride industrial boots — Specification' issued by the International Organization for Standardization.

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